

REMARKS

In accordance with the foregoing, the specification and claim 2 are amended. No new matter is presented in any of the foregoing and, accordingly, approval and entry of the amended specification and amended claim are respectfully requested.

Claims 1-8 and 13-15 are pending and under consideration.

ITEM 3: OBJECTION TO SPECIFICATION

The Examiner objects to the specification because of informalities. The specification is amended as suggested by the Examiner to replace and Applicant requests the objection to the specification be withdrawn.

ITEM 4: OBJECTION TO CLAIM 2

The Examiner objects to claim 2 because of informalities and contends the phrase recited therein "the first and second connection portions" was not previous recited.

Claim 2 is amended therein to delete the term --the-- from the phrase. However, Applicant respectfully submits that for proper form the term --a-- should not be inserted instead as the Examiner suggests. Applicant requests the objection be withdrawn.

ITEM 9: ALLOWABLE SUBJECT MATTER

Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant appreciates the indications of allowable subject matter. However, claims 7 and 8 are not rewritten to independent form, since patentability is submitted to reside in independent claim 1 from which claims 7 and 8 depend.

ITEM 6: REJECTION OF CLAIMS 1-3, 6-8, AND 13-14 UNDER 35 U.S.C. 102(e) AS BEING ANTICIPATED BY OZAKI ET AL. (US 6,578,951 B2)

The Examiner rejects independent claims 1 and 13 (and respective dependent claims 2-3, 6-8, and 14) under 35 U.S.C. 102(e) as being anticipated by Ozaki.

The rejection is traversed.

As provided in MPEP §706.02 entitled Rejection on Prior Art, anticipation requires that the reference must teach every aspect of a claimed invention. Applicant submits that Ozaki does not support an anticipatory-type rejection by not describing features recited in the present application's independent claims.

Independent claim 1 recites an ink-jet printhead including "a first insulating layer on the surface of the substrate; first and second conductors on the first insulating layer separated from each other; a heater including a plurality of conductor connection layers electrically connecting the first and second conductors to each other, and between the first and second conductors; (and) a second insulating layer between the first and second conductors and between the plurality of conductor connection layers."

Independent claim 13 recites an ink-jet printhead including "a plurality of conductors positioned on the substrate; and a plurality of connection layers connecting at least one of the conductors to another conductor, wherein the connected conductors form a heater such that an additional resistance material need not be provided."

The Examiner mistakenly contends that these features are discussed by Ozaki and cites: heater (110) including a plurality of conductor connection layers (104, 106, 111) electrically connecting the first (105) and second (107) conductors to each other, and between the first and second conductors, 5) a second insulating layer (106) (col. 4, lns 36-38) between the first and second conductors and between the plurality of conductors connection layers.

(Action at page 3).

Applicant submits that elements discussed by the Examiner do not discuss, for example, a heater including a plurality of conductor connection layers electrically connecting the first and second conductors to each other and does not discuss connected conductors form a heater such that an additional resistance material need not be provided. Element 110 does not discuss a "heater" as the Examiner contends. Rather, Ozaki discusses

polysilicon 110 is formed on the entire surface of the substrate with polysilicon being developed by the application of CVD method at approximately 620.degree. C. . . . the polysilicon thus etched becomes the gate material of the IC driving portion, and also, becomes the wiring of the vertically turn-up wiring below the heat generating resistive members in the heat generating resistive portion . . . for the polysilicon that becomes wiring immediately below the heat generating resistive members.

(Emphasis added, see, for example, Col. 3, and 4 starting at line 55).

Further, Ozaki elements 104, 106, 111 do not discuss a plurality of conductor connection layers, as the Examiner contends. Rather, Ozaki discusses

PSG (SiO film that contains phosphorus) 104 is developed in a thickness of approximately 800 nm by means of the CVD development at approximately 400C. This film becomes the insulation film against the upper layer polysilicon which is formed later.

(See, for example, col. 4, lines starting at line 10).

Summary

Since features recited by independent claims 1 and 13 (and respective dependent claims 2-3, 6-8, and 14) are not discussed by the cited art, the rejection should be withdrawn and claims 1-3, 6-8, and 13-14 allowed.

ITEM 8: REJECTION OF CLAIMS 4-5 AND 15 UNDER 35 U.S.C. 103(a) AS BEING UNPATENTABLE OVER OZAKI IN VIEW OF KOHNO ET AL. (US 6,224,194 B1)

Dependent claim 4 recites a printhead "wherein the conductor connection layers are formed of Ti, TiN, Ta, or TaN." Dependent claim 15 recites an ink-jet printhead "wherein the connection layers are made of a barrier metal." Dependent claim 5 recites a printhead including "a passivation layer on an entire surface of the substrate covering the first and second conductors."

The Action concedes that Ozaki does not discuss these features. (Action at page 4).

Applicant submits that there is no stated motivation or reasonable chance of success to modify Ozaki as the Examiner contends. As provided in MPEP §2143 entitled Basic Requirements of a *Prima Facie* Case of Obviousness: "The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)."

Ozaki discusses that a "Si substrate 102 (or the Si substrate having driving ICs already incorporated thereon) or the like is used for the formation of the heat generating unit substrate." (See, col. 1, starting at line 50).

The Examiner contends that it would have been obvious to modify Ozaki by Kohno "for the purpose of suppressing irregularities in the resistance values of the heaters."

The rejection is traversed.

However, Kohno instead discusses (see col. 11, starting at line 28) that the purpose of the Ti (and barrier metal layer) is:

a barrier metal layer 11 formed of metal with high melting points such as Ti, W, Cr or the like is formed at the connecting point between the electrodes 4 and 5 formed primarily of aluminum m and the low-resistance portions 3a and 3b, thus preventing dispersion of the aluminum which is the principal component of the electrodes.

(Emphasis added).

Ozaki has no such electrodes, and thus Applicant submits one of ordinary skill would not look to Kohno for modification of Ozaki to include such a barrier metal layer or passivation layer.

Summary

Since *prima facie* obviousness is not established, the rejection would be withdrawn and claims 4-5 and 15 allowed.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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